Web Filtering

Tech Talk

October 2015

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Find related resources at http://lam.alaska.gov/filtering

Introduction

- What this is:
  - Consumer oriented
  - Overview
- What this is not:
  - Aimed at CIPA compliance
  - Advocating for or against web filtering

Learning Objectives

- At the end of this talk, you'll be able to:
  - Articulate some benefits and drawbacks to web filtering
  - Know the basic types of filtering/blocking
  - Know several different ways filtering can be delivered
  - Troubleshoot display issues with allowed sites related to web filtering
  - Know at least one alternative to filtering

Is Web Filtering Right for You?

Pros

- Blocks most undesired sites

- Blocks many malicious web sites

- Can decide site viewing by category

- Able to restrict to "whitelist"

- Potential bandwidth management

- Enforce time limits

Cons

- Inadvertently block useful content

- Some undesired stuff WILL get through

- Can sometimes scramble legitimate sites

- May need to filter multiple devices

Types of Web Filtering

- Address (name and IP)
- Keywords
- Service / Format of content (video/IM/etc)
- Blocking by Category
- Whitelisting

Most web filters use a mix and match of methods for higher blocking efficiency.

Address Blocking

- Usually lists of addresses, both name and associated IP addresses
    - http://ickycontent.com
    - 146.63.191.119
- Address lists are usually propriety to the vendor
    - Avoid aiding competitors
    - Avoid giving teens a "must view" list
    - Avoid giving blocked sites chances to change their addresses
    - Some vendors allow checking of single URLs. See http://www.trustedsource.org/en/feedback/url for an example with McAfee Web Gateway

Address Blocking, Continued

- Racy images can still get through
  - Example: search Pinterest for Lingerie
- Sometimes shortened URLs can be blocked
  - Example: http://goo.gl/forms/4SPnrTweR5
    - Legitimate survey blocked because other "goo.gl" URLs resolved to malicious sites.

Keyword Blocking

- Like It sounds
- Can be insensitive to context – i.e. "Breast" will knock out both "Sexy Breasts" and "Breast Cancer."
- Effect on browser
  - Block page
  - Block words on page
- Most likely to over block AND under block
- Helpless against images
  - Would show you page of human privates if labeled "figs"

Blocking by Service/Format of Content

- Restricts ACTIVITIES rather than web sites
  - Video/audio streaming
  - IM clients
  - Chat/IRC
  - Peer-to-peer file sharing
  - Anonymizers
- Has potential for bandwidth management
- Potential for blocking ALL images without ability to discriminate

Blocking Using Categories

- Web filters often allow restrictions by subject category
- Most cases categories are set by vendor
- Categories go FAR beyond porn
- Examples drawn from http://www.fortiguard.com/webfilter
    - Phishing
    - Information and Computer Security
    - Advocacy Organizations
    - Plagiarism
    - Arts and Culture
    - Sports
    - Personal Websites and Blogs
    - Child Education

Whitelisting

- Can be most restrictive form of filtering
- Can be set so that only whitelisted sites are accessible
  - More usual to add "allows allow" sites that override category blocking
- Most likely to cause display problems on allowed sites
- May be helpful for creating a "homework computer"

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Types of Filters

- Filtering can be implemented on a number of different levels
  - Internet Service Provider (ISP)
  - Domain Name Server (DNS)
  - Router/Hardware based filtering
  - Filtering programs on individual computers.

ISP - Filtering

- Every ISP filters a bit differently
- Some will filter
- Contact your provider for details

Domain Name Service (DNS) Filtering

Pros

- Easy set up
- Per computer basis
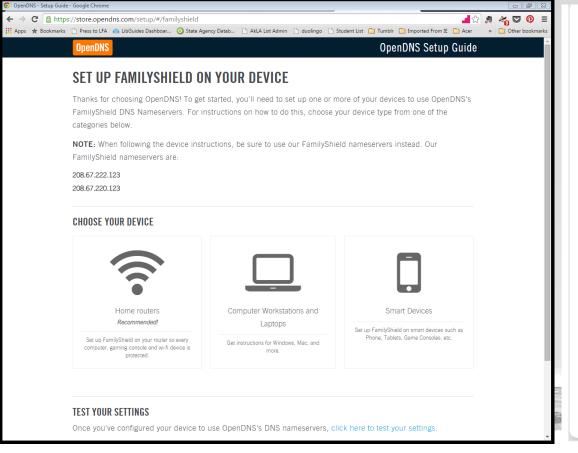
Cons

- Some solutions less customizable

Example of DNS Filter Service

Router/Hardware Filtering

Pros

- Customizable from home to individual computers

- Offers time restrictions on internet use

Cons

- Not all manufacturers support category blocking

Examples of Router Based Filters

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Cisco Meraki

Dell TZ 400 w/SonicWall

LinkSys WRT AC1900

These also serve as Wi-Fi hot spots

Typical Router Access Restrictions: These Will Vary by Vendor

List of PCs

MAC Address

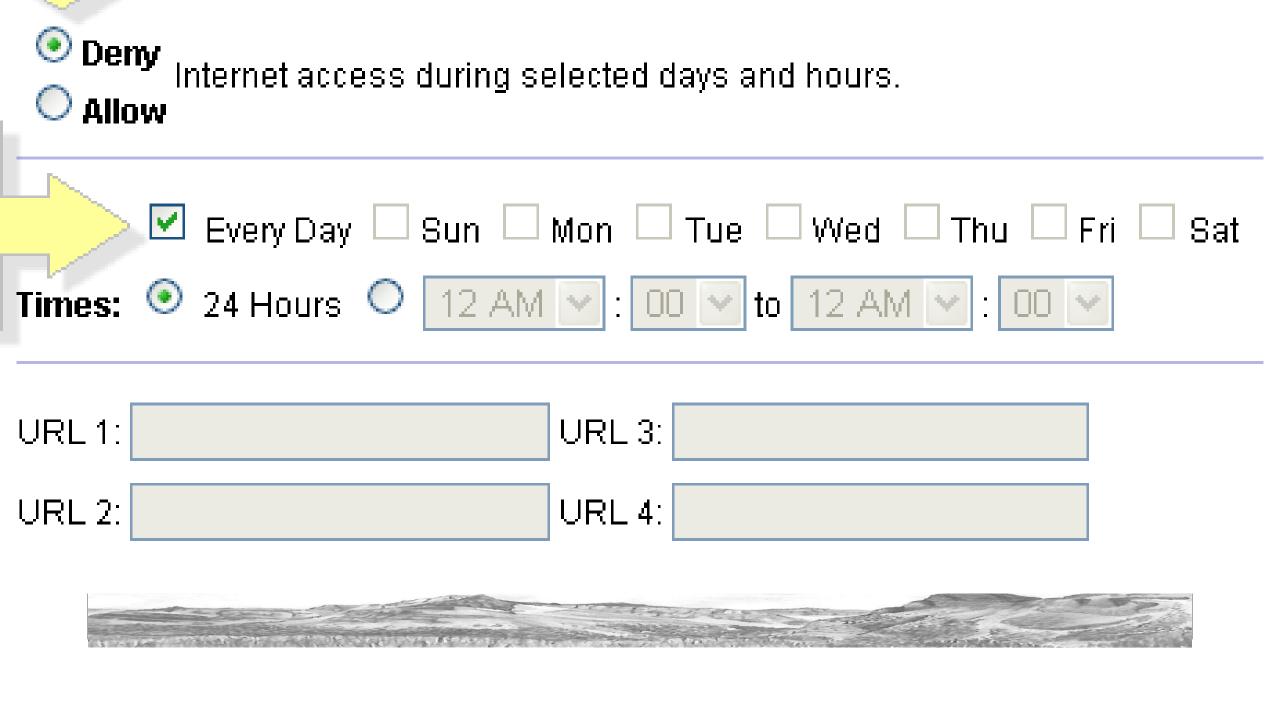| 01 | 00:00:00:00:00 | 06 | 00:00:00:00:00 |
02	00:00:00:00:00	07	00:00:00:00:00
03	00:00:00:00:00	08	00:00:00:00:00
04	00:00:00:00:00	09	00:00:00:00:00
05	00:00:00:00:00	10	00:00:00:00:00

IP Address

01	192.168.1.0	04	192.168.1.0
02	192.168.1.0	05	192.168.1.0
03	192.168.1.0	06	192.168.1.0

IP Address Range

| 01 | 192.168.1.0 to 0 | 03 | 192.168.1.0 to 0 |
| 02 | 192.168.1.0 to 0 | 04 | 192.168.1.0 to 0 |

○ **Deny** Internet access during selected days and hours.

○ **Allow**

☑ Every Day ☐ Sun ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat

Times: ⊙ 24 Hours ○ 12 AM ∨ : 00 ∨ to 12 AM ∨ : 00 ∨

URL 1: [_____] URL 3: [_____]

URL 2: [_____] URL 4: [_____]
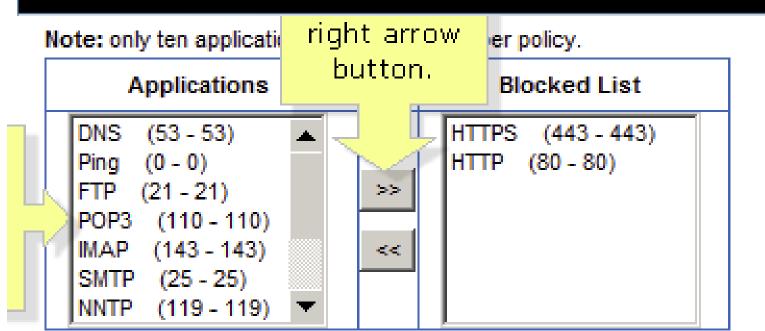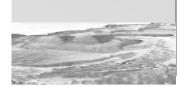
Website Blocking by URL Address

www.domainname1.com	www.domainname3.com
www.domainname2.com	www.domainname4.com

Enter the URL name.

Website Blocking by Keyword

Enter the keywords.

Note: only ten applicati[...] [...]er policy.

right arrow button.

Applications

DNS	(53 – 53)
Ping	(0 – 0)
FTP	(21 – 21)
POP3	(110 – 110)
IMAP	(143 – 143)
SMTP	(25 – 25)
NNTP	(119 – 119)

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Blocked List

| HTTPS | (443 – 443) |
| HTTP | (80 – 80) |

Application Name	
Port Range	0 to 0
Protocol	Both ▼

Computer Based Filters

Pros

- Easy to customize per computer – kid vs adult

- Easy customization of categories and/or keywords

- Activity reporting available

Cons

- Harder to standardize filters across computers

- Easier to bypass than ISP or router based filtering

Examples of Computer Based Filtering Programs

- Microsoft Family Safety
- Qustodio Parental Control
- ContentWatch Net Nanny

These examples are given for information only and do not constitute endorsement by the Alaska State Library.

Help keep your kids safer online

Sign in to your Microsoft account to help manage your kid's online activity.

Sign in

Create an account

Block websites

You can make sure that adult websites are blocked for the kids in your family. You can block specific sites, too—or choose which sites you want your kids to see.

Play time is important. Let them have fun, safely

You can allow your child to download apps and games appropriate for their age, and still make sure they don't get anything they're not ready for yet.

A window into their digital life

Get recent activity reports on sites visited, apps used, games played, and screen time. Or, check in online anytime.

Set good screen time habits

Together, you can talk about good habits and set limits on how much time they can spend with their screens.

When you sign in, you can:

View all family members

Add a family member

Remove a family member

View your kid's activity

Manage your kid's online activities and safety

Set your kid's permissions for websites, games, apps, and movies

Set up allowances

Find your kid's email address

Choose what info your kids can share with people online

Manage your kid's allowed screen time

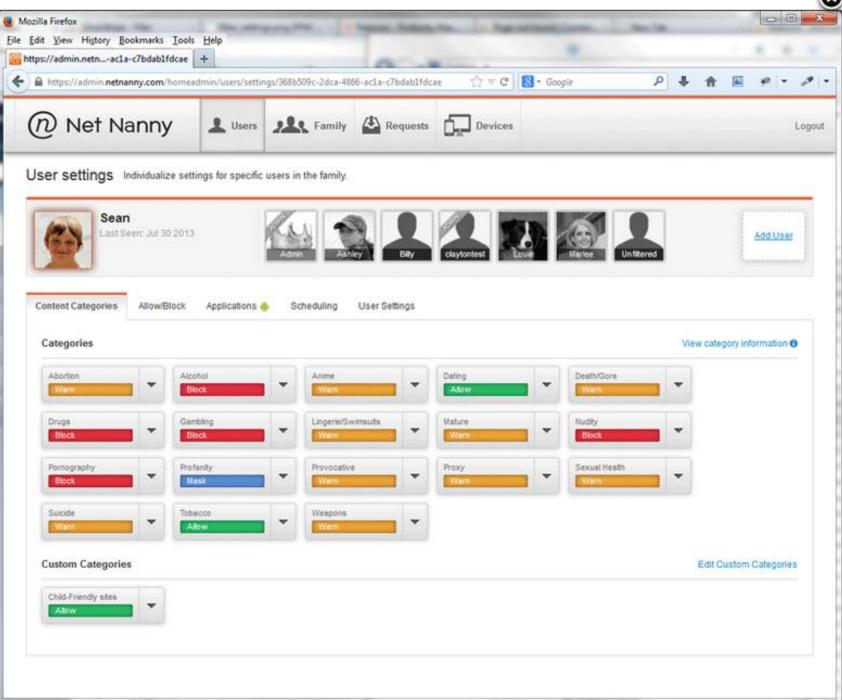Microsoft Family Safety – Baked into Windows 7 and higher.

Qustodio

https://www.qustodio.com

Net Nanny
https://www.netnanny.com/
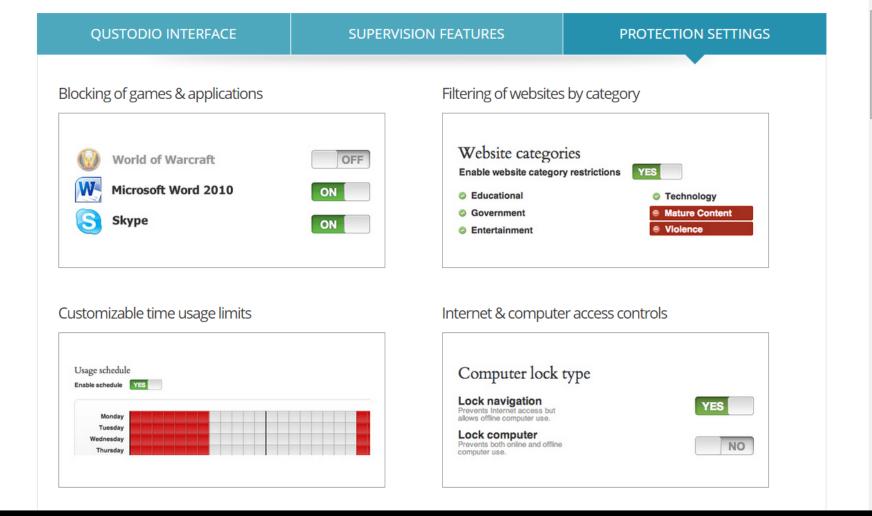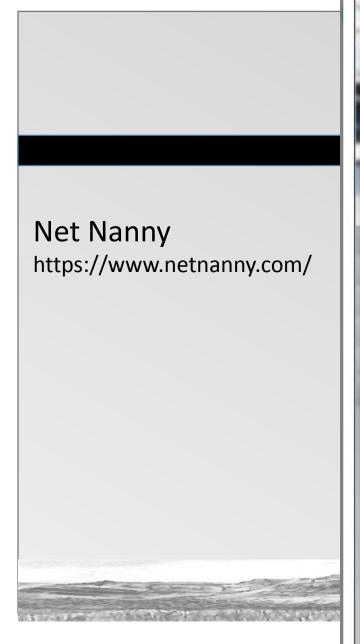
Hidden Blocks that Scramble Legitimate Sites

- Web filters sometimes have these effects on allowed pages:
  - Page looks very odd
  - Sites don't work the way you expect
- Why this happens:
  - Most web pages draw from many servers
    - Stylesheets
    - Javascript libraries
    - Images

Web Filter Display Issues: Checklist

1. Turn off filter if you can, if page displays/works normally, it's a filter issue.
2. To fix, start by viewing page's source. See your browser's help files for instructions.
3. Look for anything with a different URL in the page.
4. Copy and paste any different URLs into a new browser window, make a note of any block screens.
5. Take the URLs you've identified and have a filter admin put them into your filter's "whitelist"
6. Open up your original page with your filter turned on.

Hidden Blocks: The Verge

Hidden Blocks: The Verge
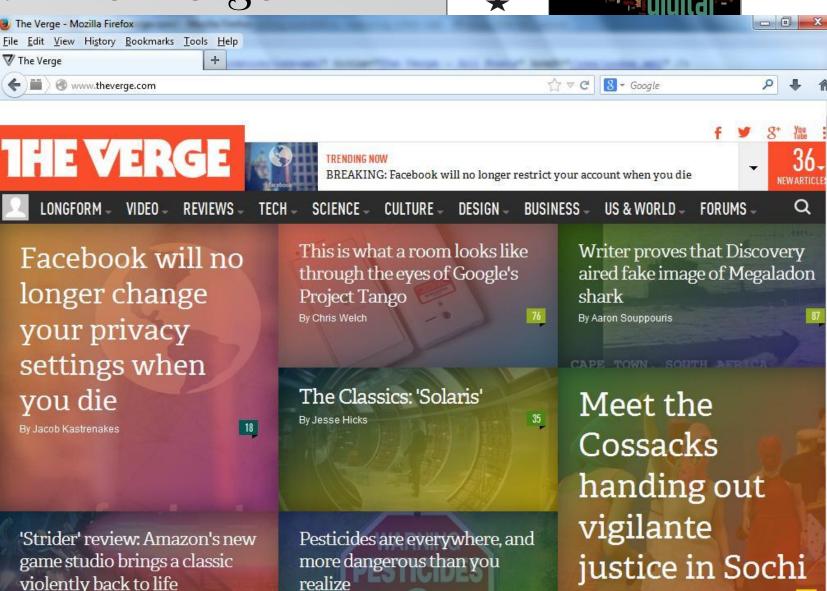
Turning off the web filter allowed us to see how The Verge is supposed to look.

So what didn't the filter like?

Hidden Blocks: The Verge

The circled URLs were classified as sports and blocked by our filter of the time.

Filtering Alternatives

- Monitoring (Included with most parental control programs)
- Put computers in common areas
- Communication
- All of the above

Example from Qustodio

Q&A

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